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## REISSUE PATENT APPLICATION TRANSMITTAL

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Alexandria, VA 22313-1450

Attorney Docket No.

First Named Inventor

Tong Zhang

Original Patent Number

6,373,868

Original Patent Issue Date  
(Month/Day/Year)

April 16, 2002

Express Mail Label No.

ET 155 074 014 US

## APPLICATION FOR REISSUE OF:

(Check applicable box)



Utility Patent



Design Patent



Plant Patent

## APPLICATION ELEMENTS (37 CFR 1.173)

1. ☒ Fee Transmittal Form (PTO/SB/56)  
(Submit an original, and a duplicate for fee processing)
2. ☒ Applicant claims small entity status. See 37 CFR 1.27.
3. ☒ Specification and Claims in double column copy of patent format  
(amended, if appropriate)
4. ☐ Drawing(s) (proposed amendments, if appropriate)
5. ☒ Reissue Oath/Declaration (original or copy)  
(37 CFR 1.175) (PTO/SB/51 or 52)
6. ☐ Power of Attorney
7. ☐ Original U.S. Patent currently assigned? ☐ Yes ☒ No  
(If Yes, check applicable box(es))
- ☐ Written Consent of all Assignees (PTO/SB/53)
- ☐ 37 CFR 3.73(b) Statement  
(PTO/SB/96)
8. ☐ CD-ROM or CD-R in duplicate, Computer Program (Appendix)  
or large table
9. Nucleotide and/or Amino Acid Sequence Submission  
(if applicable, all of the following are necessary)
- a. ☐ Computer Readable Form (CFR)
- b. Specification Sequence Listing on:
- i. ☐ CD-ROM (2 copies) or CD-R (2 copies); or
- ii. ☐ paper
- c. ☐ Statements verifying identity of above copies

## ACCOMPANYING APPLICATION PARTS

10. ☒ Statement of status and support for all  
changes to the claims. See 37 CFR 1.173(c).
11. ☐ Original Patent Grant
- ☐ Ribbioned Original Patent Grant
- ☐ Statement of Loss (PTO/SB/55)
12. ☐ Foreign Priority Claim (35 U.S.C. 119)  
(if applicable)
13. ☒ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS  
Citations
14. ☐ English Translation of Reissue Oath/Declaration  
(if applicable)
15. ☐ Preliminary Amendment
16. ☒ Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
17. Other: \_\_\_\_\_

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Date

This collection of information is required by 37 CFR 1.173. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Reissue, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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<b>REISSUE APPLICATION FEE TRANSMITTAL FORM</b>							Docket Number (Optional)	
<b>Claims as Filed – Part 1</b>								
	(1) Claims in Patent	(2) Number Filed in Reissue Application	(3) Number Extra	Small Entity		Other than a Small Entity		
				Rate	Fee		Rate	Fee
Total Claims (37 CFR 1.16(j))	(A) 11	(B) 1	**** =	x \$ ____ =		or	x \$ ____ =	
Independent claims (37 CFR 1.16(i))	(C) 8	(D) 9	* =	x \$ ____ =			x \$ ____ =	
Basic Fee (37 CFR 1.16(h))				\$ ____			\$ ____	
Total Filing Fee				\$ ____			OR \$ ____	
<b>Claims as Amended – Part 2</b>								
	(1) Claims Remaining After Amendment		(2) Highest Number Previously Paid For	(3) Extra Claims Present	Small Entity		Other than a Small Entity	
					Rate	Fee		Rate
Total Claims (37 CFR 1.16(j))	***	MINUS	**	* =	x \$ ____ =		x \$ ____ =	
Independent Claims (37 CFR 1.16(i))	***	MINUS	*****	=	x \$ ____ =		x \$ ____ =	
Total Additional Fee					\$ ____		OR \$ ____	
<p>* If the entry in (D) is less than the entry in (C), Write "0" in column 3.</p> <p>** If the "Highest Number of Total Claims Previously Paid For" is less than 20, Write "20" in this space.</p> <p>*** After any cancellation of claims.</p> <p>**** If "A" is greater than 20, use (B – A); if "A" is 20 or less, use (B – 20).</p> <p>***** "Highest Number of Independent Claims Previously Paid For" or Number of Independent Claims in Patent (C).</p> <p><input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.</p> <p><input type="checkbox"/> Please charge Deposit Account Number _____ in the amount of _____. A duplicate copy of this sheet is enclosed.</p> <p><input type="checkbox"/> The Director is hereby authorized to charge any additional fees under 37 CFR 1.16 or 1.17 which may be required, or credit any overpayment to Deposit Account Number _____. A duplicate copy of this sheet is enclosed.</p> <p><input checked="" type="checkbox"/> A check in the amount of \$ <u>385</u> to cover the filing/additional fee is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p style="text-align: center; padding-top: 20px;"><b>WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.</b></p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> <p style="font-size: 1.5em; margin: 0;">4-8-2004</p> <p style="margin: 0;">Date</p> <p style="margin-top: 20px;">Registration Number, if applicable</p> </div> <div style="width: 45%; text-align: right;"> <p style="font-size: 1.2em; margin: 0;">Tong Zhang</p> <p style="margin: 0;">Signature of Applicant, Attorney or Agent of Record</p> <p style="font-size: 1.2em; margin: 0;">TONG ZHANG</p> <p style="margin: 0;">Typed or printed name</p> </div> </div>								

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

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## **Statement of Status/Support for all Changes to the Claims**

### **For reissue of U.S. Pat. 6,373,868**

This reissue is a broadening reissue. The specification and drawings are kept same as before. The amendment for claims is simple, only a limitation in Claim 1 has been removed. Claim 1 is the only independent claim in the patent.

In Claim 1 two approaches are discovered and specified to realize single longitudinal mode operation in order to solve the well-known so-called "green problem". The step (4) A and B of Claim 1 define the first approach and second approach, respectively.

In the first approach, a formation of wavelength selectivity with low insertion losses, i.e., a low resolving-power spectral filter relative to a low frequency-selective loss has been used in cooperation with a pump head with a thin gain zone that leads to minimizing the spatial hole-burning effect.

However, it is not necessary to stipulate said formation of wavelength selectivity in detail in the first approach in Claim 1 to limit its coverage. Accordingly, those specified members for said formation, which are recited in a Markush group, now have been removed from Claim 1 and then become a succeeding dependent claim, i.e., Claim 2. Such an amendment also makes much clearer for the claimed subject matter without confusion.

Besides, the other succeeding dependent claims have been renumbered and made some small changes correspondingly. On the other words, numbering of patent claims almost is preserved in the present amendment.

#### **[What is "Green Problem"]**

It had been harassed and frustrated for many world-class scientists and engineers, for almost ten years from 1986 to 1995, to obtain stable continue wave (CW) visible light, typically green light from the new generation laser system, i.e., DPSS lasers. It is that the well-known so-called "green problem". The essential difficulty in solving the "green problem" results from that, there is a persistent obstacle in effectively obtaining single longitudinal mode CW operation due to the spatial hole-burning effect in solid-state lasers. The related critical design issues are considered to be extremely tough during that time.

#### **[What Is Claimed Is in My Patent and Its Patentability]**

In my U.S. Pat. 6,373,868, spatial hole burning effect is minimized by means of a thin gain region in contact with an end cavity mirror. Then a low resolving-power spectral filter with low loss, such as Lyot filter or low-finesse etalon or the like, is used to realize single axial-mode CW operation and stable intracavity SHG output, whereby overcoming the major difficulty with intracavity frequency conversions, i.e., the well-known so-called "green problem".

In order to overcome the well-known so-called "green problem", nobody in the prior art has ever suggested and considered the use of a low resolving-power spectral filter relative to a low frequency-selective loss in cooperation with a pump head with a thin gain zone that leads to minimizing the spatial hole-burning effect. This is the first approach defined by the step (4) A of Claim 1. Also, nobody in the prior art has ever suggested and considered the use of a spectral filter in cooperation with a beam expander to reduce the insertion losses. This is the second approach defined by the step (4) B of Claim 1.